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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,140	12/15/2000	Toyokazu Sakata	32011-168503	8430

26694 7590 03/18/2003

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/736,140

Applicant(s)

SAKATA ET AL.

Examiner

Alexander O Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 9-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 17 December 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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Serial Number: 09/734140 Attorney's Docket #: 32011-168503

Filing Date: 12/15/2000; claimed foreign priority to 12/15/99 and 11/13/2000

Applicant: Sakata et al.

Examiner: Alexander Williams

Applicant's Amendment in Paper # 9, filed 12/17/02 has been acknowledged.

This application contains claims 8 to 19 drawn to an invention non-elected without traverse in Paper No. 6.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a base oxide film with holes and formed on the underlayer; a plurality of nitride film patterns with a hole pattern formed on the base oxide film and directly above the holes; ...the upper oxide film having formed therethrough an plurality of wiring grooves which each exposes part of an associated nitride film pattern including said hole patterns ... and wherein said nitride film patterns are formed with such a shape and size that surrounds the outside of their associated wiring groove and are separate from neighbouring nitride film patterns in claim 1; a base oxide film with holes formed on the underlayer; a plurality of nitride film patterns with a hole pattern formed on the base oxide film and directly above the holes.... the upper oxide film having formed therethrough an plurality of wiring grooves which each exposes part of an associated nitride film pattern including said hole patterns .... and neighbouring nitride film patterns are separate from each other in claim 3; and the base oxide film having formed therethrough a plurality of holes; an upper oxide film formed on the underlayer, **the base oxide film** having formed therethrough **a plurality of holes**; an upper oxide film provided on the base oxide film,

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the upper oxide film having formed therethrough **wiring grooves** which are connected to said holes; and wiring metal that fills **said holes** and said **wiring grooves**, said wiring metal having a first portion around the periphery of said hole having a first diameter and a second portion at a middle section of said upper oxide film above said first portion having a diameter smaller than the first diameter in claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claims 1 to 8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 3 recites the limitation "said holes" in the phrase "with a hole pattern on the base oxide film and directly above said holes. There is insufficient antecedent basis for this limitation in the claim.

In claims 1 and 3, it is unclear and confusing to what is meant by "a plurality of nitride patterns with a hole pattern formed on the base oxide film and directly above said holes." The hole pattern appears to be formed in the base oxide film and there appears to be nothing formed directly above the holes. Which is this shown in the drawings?

In claim 4, it is unclear which and what is meant by "said hole." Which hole?

In claim 4, it is unclear and confusing to what is meant by "wiring metal that fills said holes and said wiring grooves, said wiring metal having a first portion around the

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periphery of said hole having a first diameter and a second portion at a middle section of said upper oxide film above said first portion having a diameter smaller than the first diameter.” It appears that drawing show the hole in the base oxide film and the groove is in the upper oxide groove. If the “first portion around the periphery of said hole having a first diameter” is the intersection of the oxide film 12 and the upper oxide film 16, and “a second portion at a middle section of said upper oxide film above said first portion having a diameter smaller than the first diameter” is the middle portion of the upper oxide film 16, how is smaller and which is this shown in the drawing?

Any of claims 1 to 8 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 to 8, **insofar as they can be understood**, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mu et al. (U.S. Patent # 5,612,254).

For example, in claim 1 and similar claim 3, Mu et al. (figures 1 to 13) specifically figure 7 show a semiconductor device, comprising: an underlayer **20**; a base oxide film **22** with holes and formed on the underlayer; a plurality of nitride film patterns (**23 in both sides of the hole**) with a hole pattern formed on the base oxide film and directly above the holes; an upper oxide film **50** provided on top of said base oxide film to cover the nitride film pattern, the upper oxide film having formed therethrough an wiring grooves which each exposes part of an associated nitride film pattern including said hole patterns; and wiring metal **41,61** that fills part of the exposed nitride film pattern, said holes, and said wiring grooves; and wherein said nitride film patterns are formed with such a shape and size that surrounds the outside of their associated wiring groove and is separate from neighbouring nitride film patterns. Mu et al. Fail to explicitly show a plurality of holes in the base oxide film. However, it would be the designers choice to have other device created within the substrate formed.

As to claim 2, Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

In claim 4, Mu et al. (figures 1 to 13) specifically figure 9 show a semiconductor device, comprising: an underlayer **20**; a base oxide film **22** formed on the underlayer, the base oxide film having formed therethrough a plurality of holes (**portion housing 40,41**); an upper oxide film **50** formed on the underlayer, the upper oxide film having formed therethrough wiring grooves (**portion housing 60,61**) which are connected to said holes; and wiring metal **41,61** that fills said holes and said wiring grooves, said wiring metal having a first portion around the periphery of said hole having a first diameter and a second portion at a middle section of said upper oxide film above said first portion having a diameter smaller than the first diameter.

Therefore, it would be obvious to one of ordinary skill in the art to use the teaching of Mu et al.'s device to form a plurality of devices for the purpose of processing a plurality of semiconductor devices on one wafer.

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Claims 1 to 8, **insofar as they can be understood**, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nguyen et al. (European Patent Application # 0892428A2).

For example, in claim 1 and similar claims 3 and 4, Nguyen et al. (figures 1 to 20) specifically figure 15 show a semiconductor device **160**, comprising: an underlayer **162**; a base oxide film **168** with holes and formed on the underlayer; a nitride film pattern **178** with a hole pattern formed on the base oxide film and directly above the holes; an upper oxide film **170** provided on top of said base oxide film to cover the nitride film pattern, the upper oxide film having formed therethrough a wiring groove **172,188** which exposes part of the nitride film pattern including said hole patterns; and wiring metal that fills part of the exposed nitride film pattern, said holes, and said wiring grooves; and wherein said nitride film pattern is formed with such a shape and size that surrounds the outside of said wiring groove and is separate from neighbouring nitride film patterns. Nguyen et al. Show the feature of the claimed invention, but fail to explicitly show the plurality of holes, nitride patterns and grooves. However, it would be the designer choice to cascade the same pattern along the underlayer.

As to claim 2, Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Therefore, it would be obvious to one of ordinary skill in the art to use the teaching of Nguyen et al.'s device to form a plurality of devices for the purpose of processing a plurality of semiconductor devices on one wafer.

## Response

Applicant's arguments filed 12/17/02 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

The insertion of Applicant's additional claimed language, for example, "in claims 1, 3 and 4" cause for further search and consideration to make this action final.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Field of Search	Date
U.S. Class and subclass: 257/774,700,701,758-765,767,741,750-753,759	9/17/02 3/15/03
Other Documentation: foreign patents and literature in 257/774,700,701,758- 765,767,741,750-753,759	9/17/02 3/15/03
Electronic data base(s): U.S. Patents EAST	9/17/02 3/15/03



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***Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.***

Any inquiry concerning this communication or any earlier communication from the examiner should be directed to ***Examiner Alexander Williams*** whose telephone number is ***(703) 308-4863***.

Any inquiry of a general nature or relating to the status of this application should be directed to the ***Technology Center 2800 receptionist*** whose telephone number is ***(703) 308-0956***.

3/15/03



Primary Examiner  
Alexander O. Williams